UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF COMMERCIAL FISHERIES

CALIFORNIA FISHERY MARKET NEWS MONTHLY SUMMARY

DECEMBER 1968

PART II–Fishing Information*

Sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists

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SEA SURFACE TEMPERATURE CHARTS, EASTERN PACIFIC OCEAN DECEMBER 1968

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Charts

Figure 1.--Mean sea surface temperatures (°F) derived from approximately 8000 observations. Squares show temperatures at weather ship stations. Numerals on shore are temperatures at coastal and lightship stations.

Figure 2.--Deviation of sea surface temperatures (°F) from long term charts of H.O. 225. Hatched areas are colder in 1968.

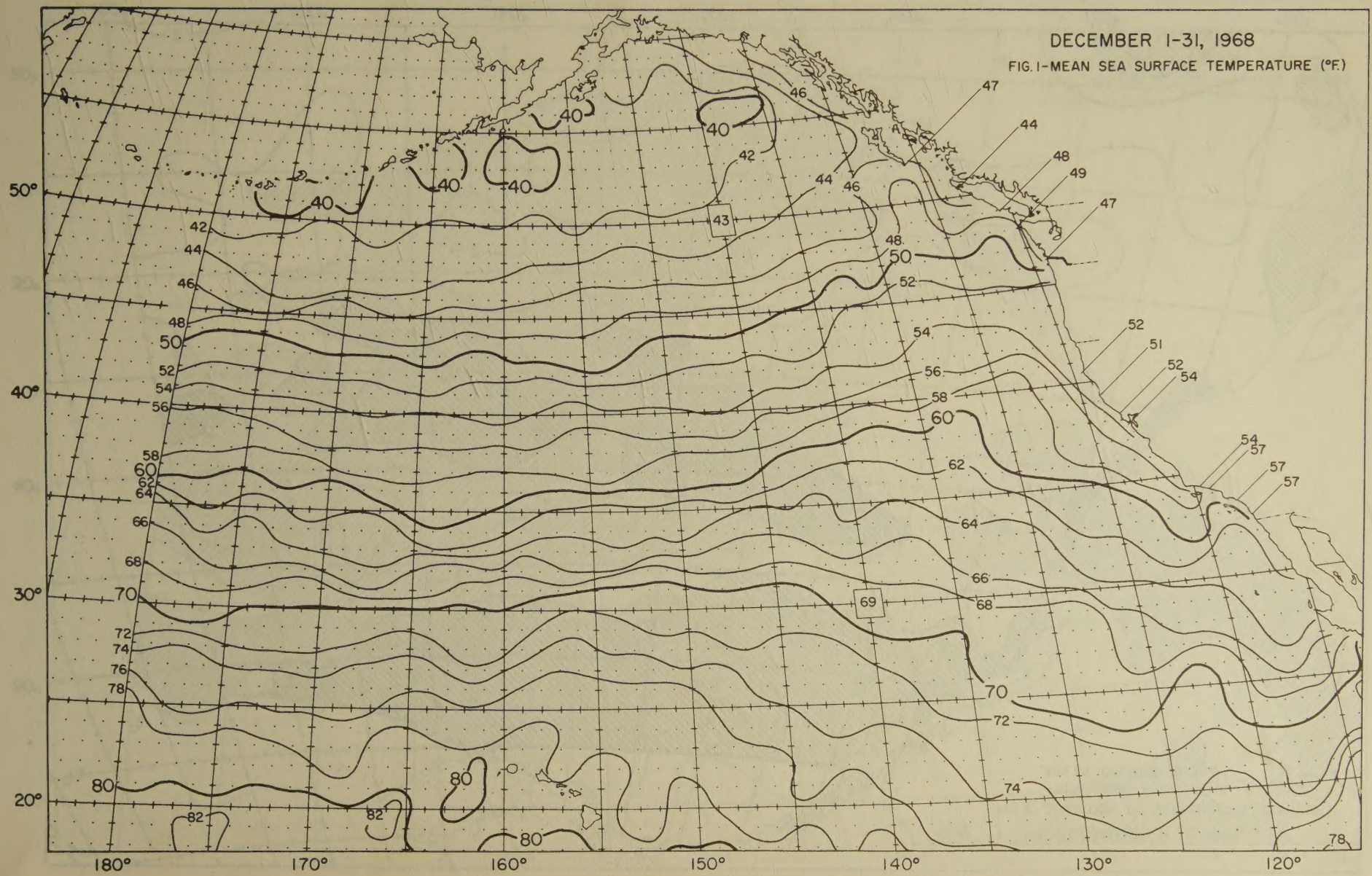
Figure 3.--Deviation of sea surface temperatures (°F) from those of December 1967. Hatched areas are colder in 1968.

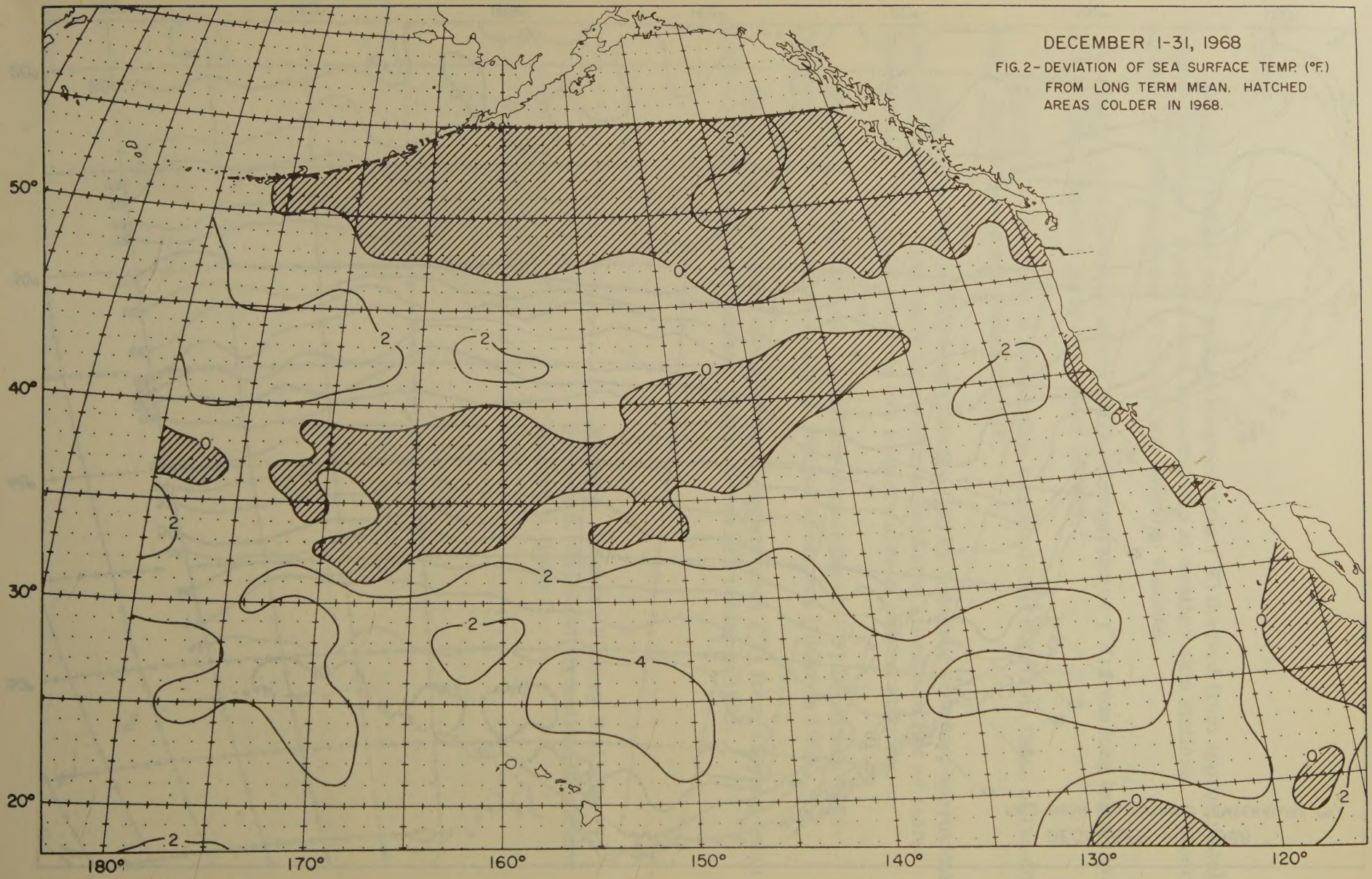
Figure 4.--Sea surface temperatures (°F) by 1-degree squares, approximately 2000 observations. Line under temperatures indicates average of two or more observations. Numerals on shore are temperatures at coastal stations.

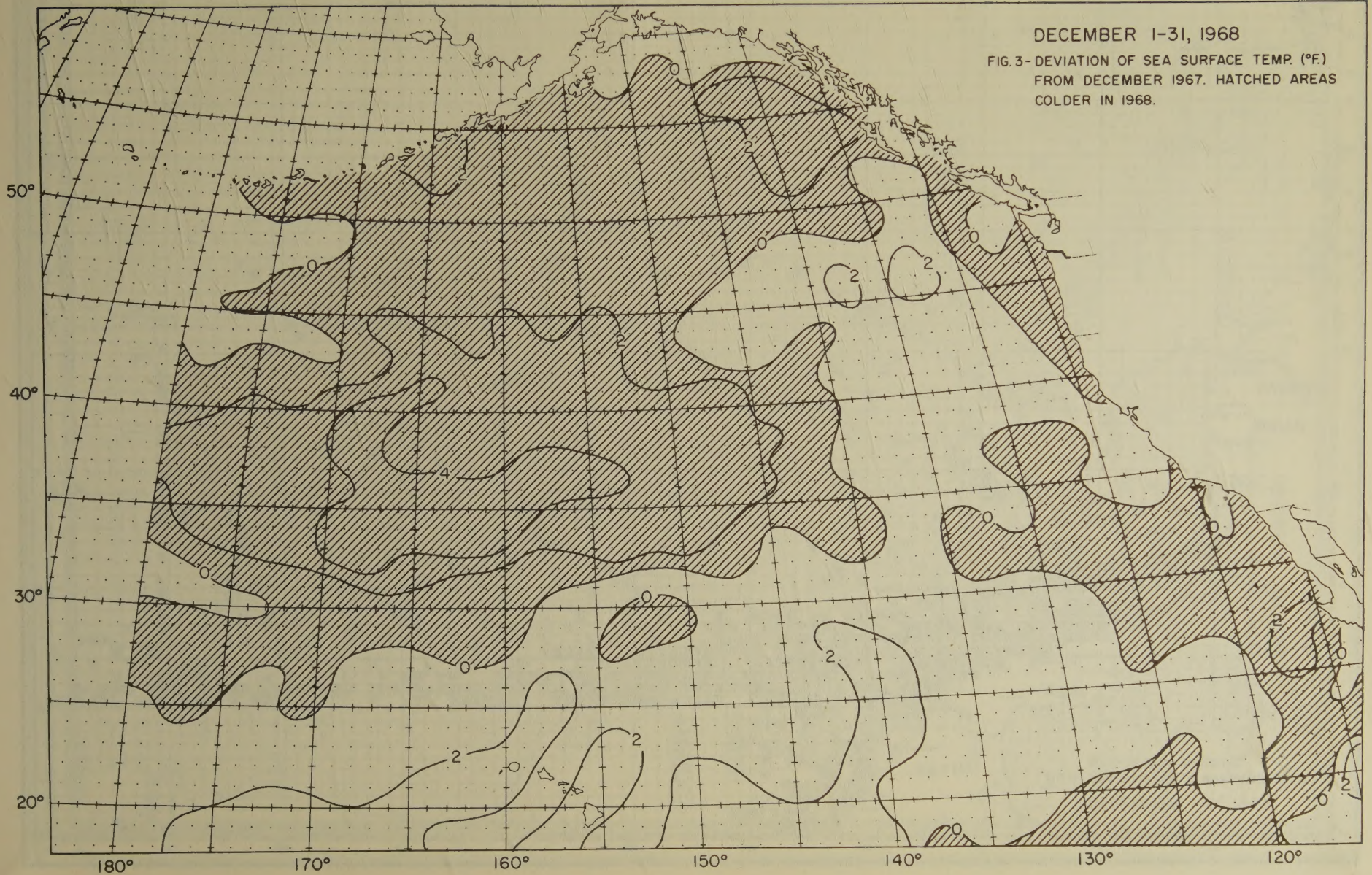
Figure 5.--Deviation of sea surface temperatures (°F) December 1968-December 1967 by 1-degree squares. Shaded areas are colder in 1968.

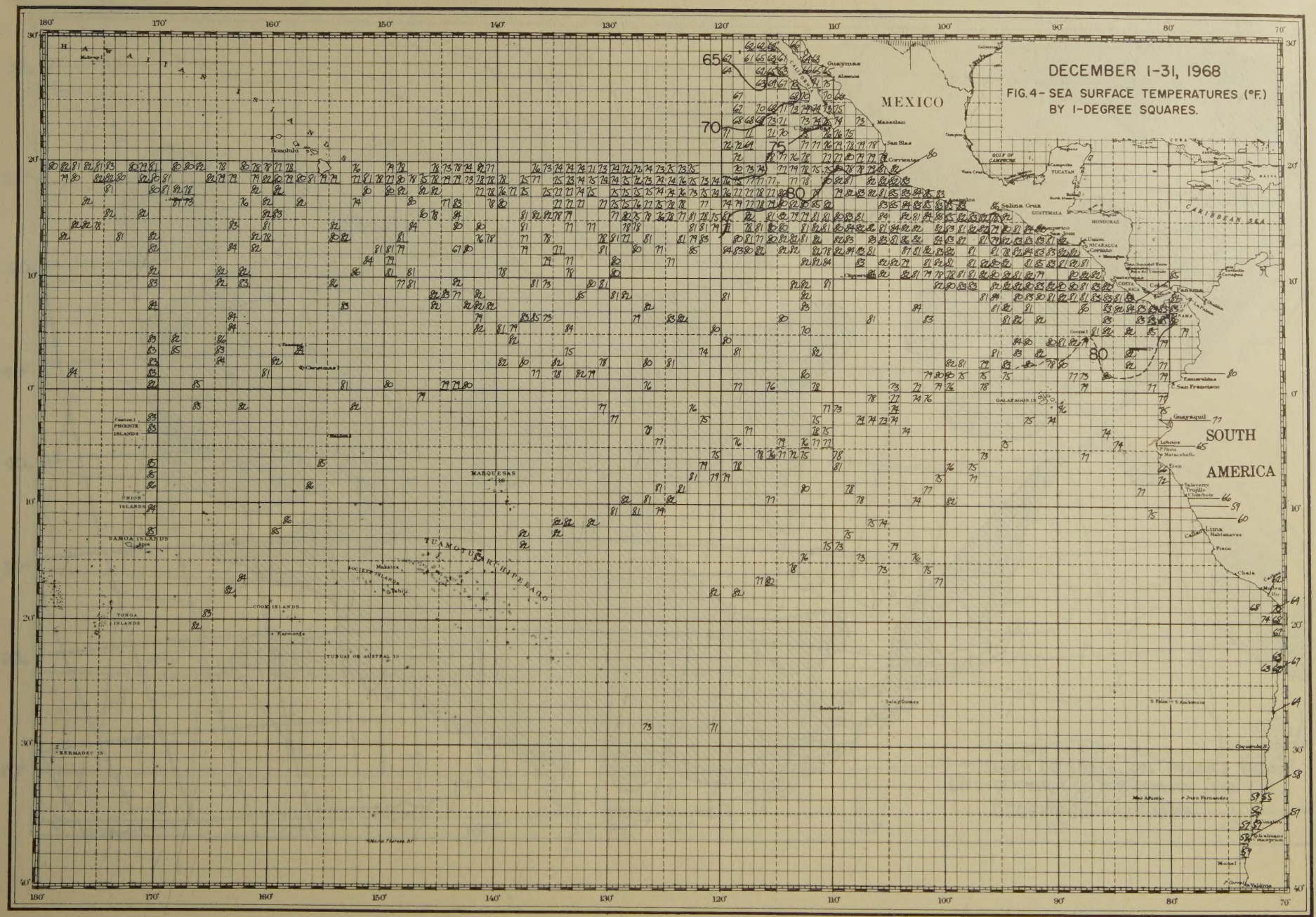
Figure 6.--Deviation of sea surface temperatures (°F) from 12-year mean (1947-1958) by 2-degree squares. Shaded areas are colder in 1968.

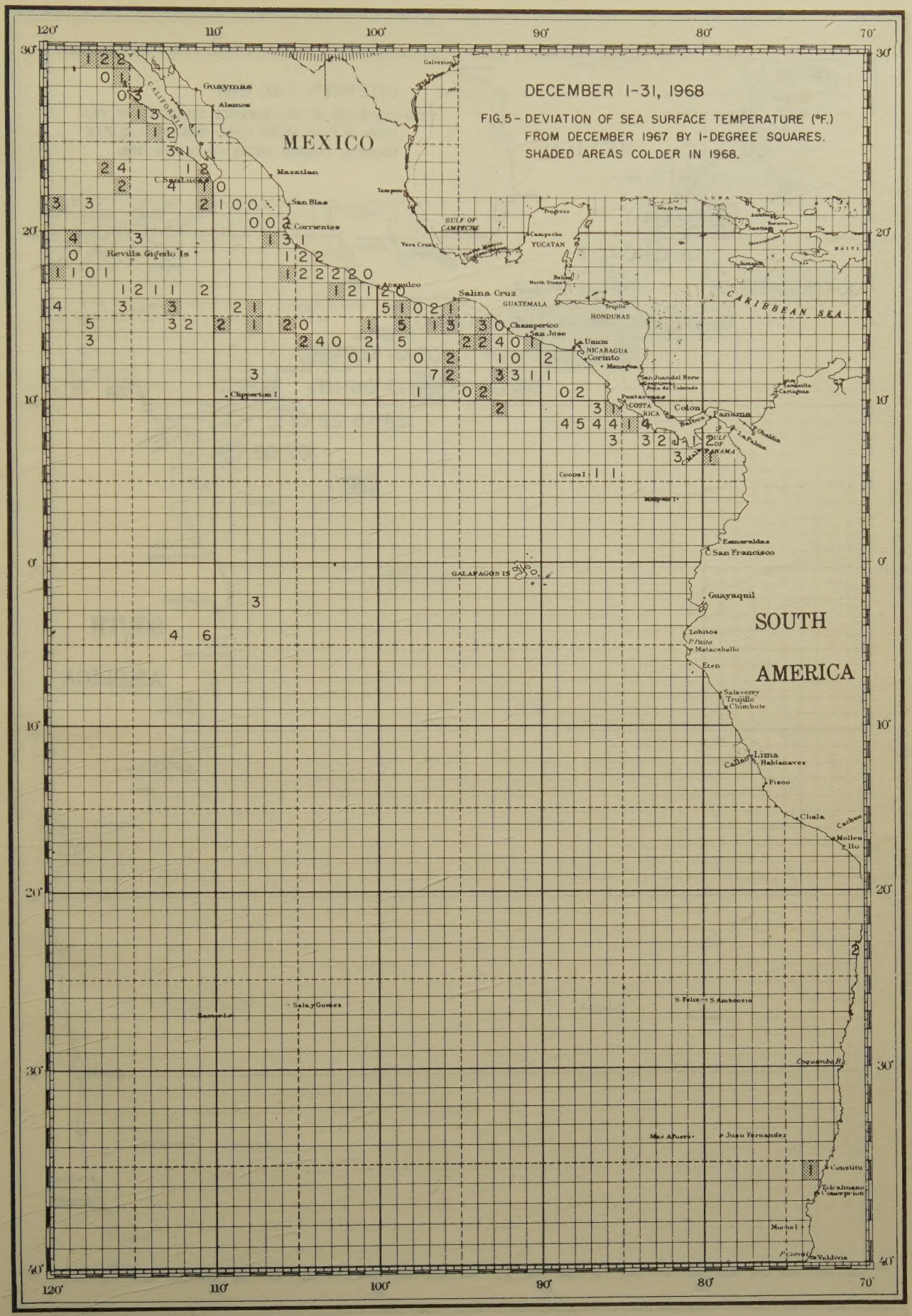
James A. Renner, Fishery Biologist
Kenneth S. Raymond, Scientific Illustrator
January 9, 1969

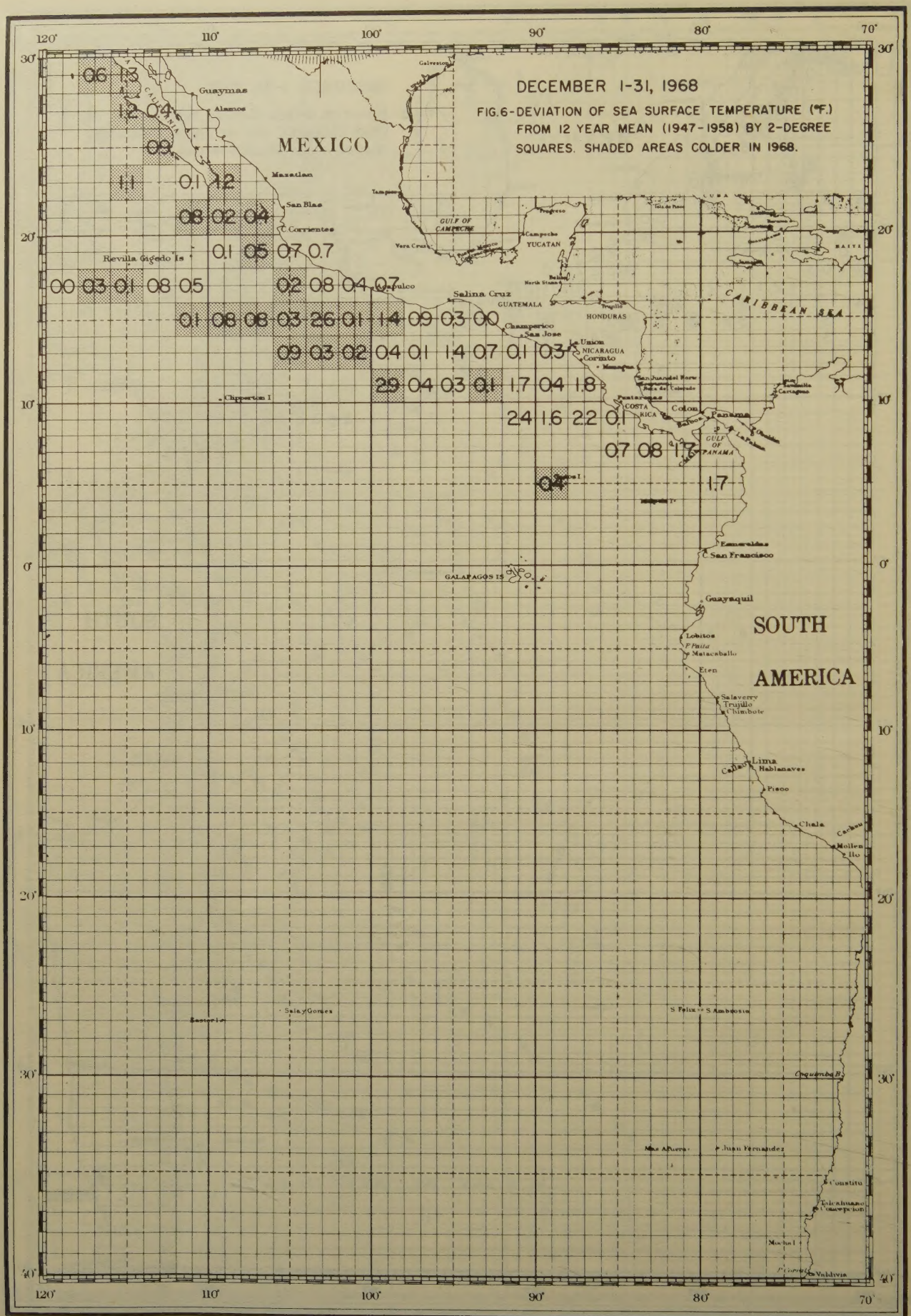

DECEMBER 1-31, 1968
FIG. 1-MEAN SEA SURFACE TEMPERATURE (°F.)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


DECEMBER 1-31, 1968
FIG. 2 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM LONG TERM MEAN. HATCHED AREAS COLDER IN 1968.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
2
0
2
2
0
2
2
0
2
2
4
0
0
2
2


DECEMBER 1-31, 1968
FIG. 3 - DEVIATION OF SEA SURFACE TEMP. (°F.) FROM DECEMBER 1967. HATCHED AREAS COLDER IN 1968.
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
0
2
4


DECEMBER 1-31, 1968
FIG. 4 - SEA SURFACE TEMPERATURES (°F.) BY 1-DEGREE SQUARES.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CUBA
YUCATAN
GALAPAGOS IS
MARQUESAS IS
SAMOA ISLANDS
TONGA ISLANDS
COOK ISLANDS
TUAMOTU ARCHIPELAGO
SOCIETY ISLANDS
TUBUAI OR AUSTRAL IS
KERMADEC IS
Guaymas
Mazatlan
San Blas
Corrientes
Salina Cruz
Acapulco
Manzanillo
Callao
Lima
Pisco
Chala
Salaverry
Trujillo
Chimbote
Guayaquil
Esmeraldas
San Francisco
Honolulu
Papeete
Tahiti
Pago Pago
Apia
Nukualofa
Rarotonga
Easter I
Juan Fernandez
Mas Afuera
Valparaiso
Concepcion
Talcahuano
Coquimbo
Iquique
Arica
Mollendo
Matarani
Paita
Talara
Tumbes
Buenaventura
Cristobal
Balboa
Cocos I
Malpelo I
Gorgona I
Gorgonilla I
Tortuga I
Margarita I
Curacao
Aruba
Maracaibo
La Guaira
Puerto Cabello
Barranquilla
Cartagena
Santa Marta
Colon
Puntarenas
Corinto
Salina Cruz
Manzanillo
Acapulco
Zihuatanejo
Mazatlan
Guaymas
Topolobampo
Ensenada
San Diego
Los Angeles
San Pedro
Monterey
San Francisco
Eureka
Seattle
Juneau
Sitka
Kodiak
Dutch Harbor
Adak
Attu
Midway
Wake
Johnston
Canton I
Phoenix Islands
Line Islands
Marcus
Marianas
Guam
Palau
Yap
Truk
Ponape
Kwajalein
Majuro
Eniwetok
Bikini
Enewetak
Rongelap
Ailinginae
Rongerik
Utirik
Wotho
Ujelang
Kwajalein
Johnston I
Palmyra I
Christmas I
Fanning I
Washington I
Jarvis I
Howland I
Baker I
Enderbury I
Hull I
Gardner I
Nihoa I
Necker I
French Frigate Shoals
Laysan I
Lisianski I
Pearl and Hermes Reef
Midway Is
Kure I
Wake I
Marcus I
Minami-Tori-Shima
Iwo Jima
Chichi-Jima
Haha-Jima
Ogasawara Gunto
Volcano Is
Marianas
Guam
Rota
Tinian
Saipan
Palau Is
Yap
Truk
Ponape
Kusaie
Nauru I
Ocean I
Gilbert Is
Tarawa
Makin
Abemama
Kuria
Aranuka
Nonouti
Onotoa
Tabiteuea
Beru
Nikunau
Arorae
Tamana
Marakei
Butaritari
Ellice Is
Funafuti
Nanumea
Nanumanga
Niutao
Nui
Vaitupu
Nukufetau
Nukulaelae
Niulakita
Rotuma I
Fiji Is
Suva
Lautoka
Nadi
Levuka
Rabi I
Kandavu I
Vanua Levu
Taveuni
Lau Group
Lakemba
Moala I
Matuku I
Totoya I
Cikobia I
Koro I
Ovalau I
Viti Levu
Yasawa Group
Mamanuca Group
Lomaiviti Group
Rotuma I
Wallis I
Futuna I
Alofi I
Uvea I
Wallis Is
Horne Is
Futuna Is
Alofi I
Uvea I
Samoa Is
Apia
Pago Pago
Manua Is
Tutuila I
Aunuu I
Upolu I
Savaii I
Tonga Is
Nukualofa
Vavau
Haapai
Eua I
Tongatabu
Niuafoou I
Niuatoputapu I
Tafahi I
Niue I
Cook Is
Rarotonga
Aitutaki
Manuae
Mitiaro
Atiu
Mauke
Takutea I
Penrhyn I
Pukapuka I
Nassau I
Suwarrow I
Rakahanga I
Manihiki I
Palmerston I
Gardner I
Society Is
Tahiti
Moorea I
Maiao I
Tetiaroa
Mehetia I
Tubuai Is
Rapa I
Raivavae I
Marotiri Is
Austral Is
Rurutu I
Tubuai I
Raivavae I
Rapa I
Marotiri Is
Tuamotu Archipelago
Gambier Is
Mangareva I
Aukena I
Akamaru I
Marquesas Is
Nukuhiva I
Uapou I
Ua Huka I
Ua Pou I
Eiao I
Hatutu I
Motane I
Fatu Huku I
Hiva Oa I
Tahuata I
Easter I
Sala y Gomez I
San Felix I
San Ambrosio I
Juan Fernandez Is
Robinson Crusoe I
Alexander Selkirk I
Mas Afuera I
Mas a Tierra I
Desventuradas Is
San Felix I
San Ambrosio I
Salas y Gomez I
Easter I
Sala y Gomez
Nazca
Peru
Chile
Argentina
Bolivia
Paraguay
Uruguay
Brazil
Ecuador
Colombia
Venezuela
Guyana
Suriname
French Guiana
Trinidad
Tobago
Barbados
Grenada
St Vincent
St Lucia
Martinique
Guadeloupe
Montserrat
Antigua
St Kitts
Nevis
Anguilla
St Martin
St Barthelemy
Saba I
St Eustatius I
Dominica
Aruba
Curacao
Bonaire
Los Roques Is
Las Aves de Barlovento
Las Aves de Sotavento
Los Testigos
Margarita I
Coche I
Cubagua I
Blanquilla I
Orchila I
La Tortuga I
Los Frailes Is
Los Hermanos Is
Los Monjes Is
Los Roques Is
Las Aves de Barlovento
Las Aves de Sotavento
Los Testigos
Margarita I
Coche I
Cubagua I
Blanquilla I
Orchila I
La Tortuga I
Los Frailes Is
Los Hermanos Is
Los Monjes Is


DECEMBER 1-31, 1968
FIG. 5 - DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM DECEMBER 1967 BY 1-DEGREE SQUARES. SHADED AREAS COLDER IN 1968.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CAMPECHE
GULF OF PANAMA
GALAPAGOS IS
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
YUCATAN
CUBA
HAITI
JAMAICA
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
Champerico
San Jose
La Union
Corinto
Managua
Chipperton I
Cocos I
Malpelo I
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Huacho
Pisco
Chala
Cachau
Mollendo
Ilo
Sala y Gomez
S. Felix
S. Ambrosio
Juan Fernandez
Mas Afuera
Constitucion
Talcahuano
Mocha I.
Corral
Valdivia
Progreso
Campeche
Vera Cruz
Tampico
Galveston
Belize
Trujillo
Bocas
Colon
Panama
Puntarenas
Cartagena
Barranquilla
Maracaibo
Aruba
Curacao
Jamaica
Isla de Pinos
Santiago
Barcoa
Port au Prince
Cabo Blanco
Coquimbo
Tolten
30°
20°
10°
0°
40°
120°
110°
100°
90°
80°
70°


DECEMBER 1-31, 1968
FIG.6-DEVIATION OF SEA SURFACE TEMPERATURE (°F.) FROM 12 YEAR MEAN (1947-1958) BY 2-DEGREE SQUARES. SHADED AREAS COLDER IN 1968.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GULF OF CALIFORNIA
GULF OF PANAMA
GALAPAGOS IS
Guaymas
Alamos
Mazatlan
San Blas
Corrientes
Revilla Gigedo Is
Acapulco
Salina Cruz
GUATEMALA
HONDURAS
Champerico
San Jose
NICARAGUA
Corinto
Managua
Chippertons I
COSTA RICA
Colon
Panama
Balboa
Esmeraldas
San Francisco
Guayaquil
Lobitos
Talara
Matacaballo
Eten
Salaverry
Trujillo
Chimbote
Lima
Callao
Huacho
Pisco
Chala
Caraveli
Mollendo
Ilo
Sala y Gomez
S. Felix
S. Ambrosio
Juan Fernandez
Constitucion
Talcahuano
Concepcion
Valdivia
Tampico
Galveston
Progreso
Campeche
YUCATAN
Vera Cruz
Tehuantepec
Belize
Trujillo
Puerto Cortes
Tela de Paso
CUBA
HAITI
Kingston
Cartagena
Puerto Colombia
Barranquilla
Aruba
Curacao
La Palma
Tobago
Pedro Bank
Roncador Bank
Serrana Bank
Quita Sueno Bank
Nicaragua Rise
Misteriosa
Clipperton I
Malpelo I
Gorgona I
Gallo I
Malpelo Tr
Quiriquina I
Mocha I
Easter I
Sala y Gomez
S. Felix
S. Ambrosio
Juan Fernandez
Mas Afuera
Mas a Tierra
Easter I
120°
110°
100°
90°
80°
70°
30°
20°
10°
0°
40°

2895